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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,110	01/22/2002	Kun Shang Huang		7512

7590 01/02/2004
Kun Shang HUANG
PO Box 82-144
TAIPEI,
TAIWAN

EXAMINER

FLETCHER III, WILLIAM P

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/051,110

Applicant(s)

HUANG, KUN SHANG

Examiner

William P. Fletcher III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to because Fig. 4 is not clear and will not reproduce well. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because its improper English grammar and syntax make it confusing and difficult to understand. Correction is required. See MPEP § 608.01(b).

The examiner suggests the following new abstract: "A heat-absorbing material is first dyed and then undergoes a micro-encapsulation process to form a heat-absorbing pigment. The pigment is added to a solvent to form a coating composition. The coating composition is applied to the surface of an article by spraying."

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: METHOD FOR PREPARING A HEAT-ABSORBING PIGMENT AND COATING A SURFACE WITH A COATING COMPOSITION CONTAINING SAID PIGMENT BY SPRAYING.

4. The disclosure is objected to because of the following informalities: at 6:18 of the specification, "hexadecanoic" should, apparently, read "hexadecanoic acid."

Appropriate correction is required.

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claim 5 recites "...wherein...the heat-absorbing pigment is added to...a general pigment." The specification nowhere discloses addition of the pigment to a general pigment.

Claim Objections

6. Claims 3 and 6 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 3 recites an apparent typographical error: "...wherein the straight-chain alkanes and alcohols include." Since this claim does not specify any particular alkanes or alcohols, it does not further limit claim 2 from which it depends.

Both claim 6 and claim 1, from which it depends, recite that the heat-absorbing pigment is coated onto the surface of an article.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. **Claim 5 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for adding the heat-absorbing pigment to the solvent, does not**

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reasonably provide enablement for adding the heat-absorbing pigment to a general pigment. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

As noted above, the specification nowhere discloses the addition of the heat-absorbing pigment to a general pigment. In fact, it is unclear just what a "general pigment" is in the context of the invention. Since the disclosure is silent with respect to adding the heat-absorbing pigment to a general pigment and otherwise deals with the micro-encapsulation process, the specification does not enable one of ordinary skill in the art to make and/or use the invention of this scope.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. **Claims 1–6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The term "appropriate amount" in claim 1 is a relative term which renders the claim indefinite. The term "appropriate amount" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. How much is an appropriate amount? No standard is given by which such an amount may be ascertained.

Claim 1 is indefinite because there is no apparent relationship between step (a) and subsequent steps.

Claim 1 recites "...to about 5 volume of PVA..." in step (c) of the claim. It is unclear what "5 volume" means; what quantity it is meant to convey.

Claim 1 recites the limitation "the obtained micro-capsule" in step (e). There is insufficient antecedent basis for this limitation in the claim.

Claim 1 recites "...dissolving and dispersing..." in step (f). It is unclear how something can be both dissolved and dispersed. The two are mutually exclusive.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 1–6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zuckerman et al. (US 6,514,362 B1) in view of Isiguro (US 5,456,852 A) and Juang et al. (US 5,324,584 A).**

Zuckerman teaches a method for coating a substrate with a coating composition comprising heat-absorbing microspheres (i.e., micro-capsules) and an aqueous polymer (abstract). Although the focus of the reference is preferentially on application by knife-over-roll coating, the composition may also be applied by spraying (see Examples and 12:32–34). The polymer, which reads on applicant's claimed "solvent" may be an epoxy resin (5:50–57). The ratio of micro-capsules to solvent is from 30:100 to 500:100 (6:41–57). The reference is silent with respect to the exact nature of the micro-capsules.

Zuckerman does not teach the particular micro-capsules claimed by applicant, nor their method of preparation.

Isiguro teaches heat-absorbing micro-capsules that may be incorporated into an aqueous solution to form a coating composition (abstract and 5:24–32). The micro-capsules are prepared substantially as claimed by applicant (4:21–4:33). The micro-capsules function to absorb heat. The examiner notes that, while Isiguro teaches agitation, the reference does not specifically teach agitation at 6000 rpm, as claimed. It is the examiner's position that agitation rate is a result-effective variable effecting the degree of emulsification. Absent evidence of unexpected results demonstrating the criticality of the claimed agitation rate, it would have been obvious to one of ordinary skill in the art to optimize such a result-effective variable by routine experimentation (see MPEP § 2144.05(II)).

Since Zuckerman is silent with respect to the particular micro-particles used, one of ordinary skill in the art would have looked to the prior art to find suitable heat-absorbing micro-capsules. It would have been obvious to one of ordinary skill in the art, having Zuckerman and Isiguro in front of him/her, to modify the method of Zuckerman so as to use, as the heat-absorbing micro-capsules, those taught by and prepared according to Isiguro. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of similar results: successfully incorporating heat-absorbing micro-capsules into the coating composition.

Neither Zuckerman nor Isiguro teach that preparation of the micro-capsule includes dyeing of the heat-absorbing micro-capsule.

Juang teaches that is known to dye micro-capsules by including in the core material a dye (9:23–26). Since Zuckerman teaches that the micro-capsules are to be coated on fabric such as

garments (1:20–25) and Isiguro teaches that the micro-capsule-containing coating composition may be colored (5:30–32), one of ordinary skill in the art would have been motivated to modify the method of Zuckerman in view of Isiguro so as to dye the heat-absorbing material that forms the core of the micro-capsule. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of imparting color to the coated fabric. None of the cited references teach mixing heat-absorbing material and dye in the ratio of about 1000:3. It is the examiner's position that this ratio is a result-effective variable effecting the degree of pigmentation and hiding-power of the coating. Absent evidence of unexpected results demonstrating the criticality of the claimed polymer-to-dye ratio, it would have been obvious to one of ordinary skill in the art to optimize such a result-effective variable by routine experimentation (see MPEP § 2144.05(II)).

None of the cited references teach emulsifying in PVA. Juang teaches that PVA may be used as an emulsifier in the formation of micro-capsules (2:6–16 and 10:16-22). Consequently, it would have been obvious to one of ordinary skill in the art to modify the method of Zuckerman in view of Isiguro so as to emulsify in PVA. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of successfully producing micro-capsules. It is the examiner's position that the amount of emulsifier is a result-effective variable effecting the degree of emulsification. Absent evidence of unexpected results demonstrating the criticality of the claimed amount of PVA, it would have been obvious to one of ordinary skill in the art to optimize such a result-effective variable by routine experimentation (see MPEP § 2144.05(II)).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakahira et al. (US 5,916,478 A) teaches preparation of micro-capsules similar to that of Isiguro.

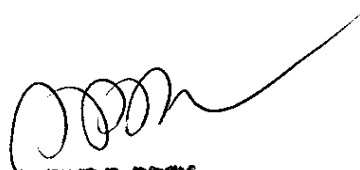
The entry for "melamine" from *The Columbia Encyclopedia*, demonstrates that melamine is a trimer of cyanamide and reads on applicant's claimed "tri-cyanamide." The entry for "melamine resin" from *Hawley's Condensed Chemical Dictionary*, demonstrates that melamine resin is a resin formed from melamine and formaldehyde. Consequently, in teaching melamine-formaldehyde resin as the heat-absorbing material, Isiguro reads on applicant's claimed "polytri-cyanamide aldehyde resin."

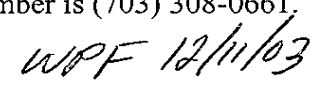
Lastly, Wu (US 6,619,049 B1), while it is not prior art, has substantially the same disclosure as the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (703) 308-7956. The examiner can normally be reached on Monday through Friday, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700


William P. Fletcher III
Examiner
Art Unit 1762

Non-final Rejection